

NSA

ABSTRACT OF THE DISCLOSURE

A number of service DSP engines form an array or matrix wherein the service DSP engines are coupled to a master DSP engine using a channelized serial bus. The master DSP engine controls a memory comprising a number of firmware algorithms used in processing a number of types of data. The master DSP engine continuously broadcasts the firmware algorithms to the service DSP engines over the channelized serial bus. The DSP array receives PCM data from multiplexed lines of a public switched telephone network and packetized data from an Internet Protocol (IP) network. The data may include, but is not limited to, modem data, voice data, audio data, video data, and facsimile data. The data is provided to one of a number of service DSP engines of a DSP array. Upon receipt of the data, each service DSP engine determines the type of the received data and determines a firmware algorithm required to process that type of data. The service DSP engine then determines an address of at least one channel of the channelized serial bus on which the required firmware algorithm is available and unmask a corresponding bit of an interrupt mask in the service DSP engine. In response to receipt of an interrupt signal corresponding to the unmasked interrupt bit, the service DSP engine executes an interrupt service routine resulting in the receipt and storage of the corresponding firmware algorithm from the master DSP engine. The service DSP engine processes the received data using the received firmware algorithm. When the data received by the service DSP engine is PCM data received from the PSTN, the service DSP engine produces packetized data for communication over the IP network. When the data received by the service DSP engine is packetized data received from the IP network, the service DSP engine produces PCM data for communication over the PSTN.